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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/750,357	12/29/2000	Katsuhiko Tomita	Q62299	6888

7590

02/27/2003

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EXAMINER

BROWN, JENNINE M

ART UNIT

PAPER NUMBER

1755

DATE MAILED: 02/27/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/750,357

Applicant(s)

TOMITA, KATSUHIKO

Examiner

Jennine M. Brown

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

Rejection of claims 1-4 under 35 U.S.C. 112 first paragraph have been dropped based on Applicants clarification of the apparatus in the Response (paper #6).

Claim Objections

Claim 1 is objected to because of the following informalities: in line 12, the word "molecular" should be "molecules". Appropriate correction is required.

Claim Rejections - 35 USC § 102

Rejection of claims 1-3 have been dropped based on Applicants clarification of the apparatus in the Response (paper #6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hafeman, et al. (US 5164319) in view of Marks, et al. (US 6203758).

Hafeman, et al. teach a chemical based CCD detector which uses AC, DC or pH as the sensing means as well as p and n doped electrodes in individual wells for using a molecular recognition layer for biochemical detection where charge is proportional to the quantity of a detected chemical (Figure 1; col. 2, l. 26-51; col. 3, l. 9-29, 40-58, 63-66; col. 4, l. 10-68; col. 5, l. 1-17; col. 6, l. 26 – col. 7, l. 8; col. 7, l. 38-68; col. 9, l. 51-59; col. 10, l. 6-34, 47-58; col. 10, l. 62 – col. 11, l. 32; col. 15, l. 25-32, 53-61; col. 16, l. 45-48; col. 18, l. 66 – col. 20, l. 16).

Hafeman, et al. do not specifically teach the molecular recognition of the sensor uses imprinting techniques for DNA. Marks, et al. teach a molecular recognition layer over the sensor using molecular imprinting techniques for DNA where the imprinted polymer is used instead of a lipid bilayer or monolayer which was previously disclosed by Hafeman, et al. (col. 2, l. 39-44; col. 3, l. 38-40; col. 4, l. 43-65; col. 8, l. 25-50; col. 19, l. 11-25; col. 22, l. 49-54; col. 25, l. 30-32, 35; col. 26, l. 1-64).

It would have been obvious to one of ordinary skill in the art to modify the apparatus of Hafeman, et al. to use the molecularly imprinted polymer of Marks, et al. because the templated polymer material would be specific to the templated DNA

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therefore a more accurate response to an unknown sample could be measured. This would decrease the amount of sample necessary to be used for the apparatus and increase the efficiency of the response of the apparatus as well.

Response to Arguments

Applicant's arguments filed in Response (paper #6) have been fully considered but they are not persuasive.

Examiner points out to Applicants that the article attached to paper 6 uses the terminology FET when describing the Novel CCD-Based pH Imaging Sensor (page 1, col. 1, l. 19, 21, col. 2, l. 15, 18, 20) therefore the query was reasonable when requested. Examiner concedes that the detection as clarified is "on chip" rather than off chip as was detailed in the Marks, et al. reference.

Examiner has applied new grounds of rejection to claims 1-4.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennine M. Brown whose telephone number is (703) 305-0435. The examiner can normally be reached on M-F 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell can be reached on (703) 308-3823. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 879-9310 for regular communications and (703) 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

jmb
February 24, 2003



Mark L. Bell
Supervisory Patent Examiner
Technology Center 1700